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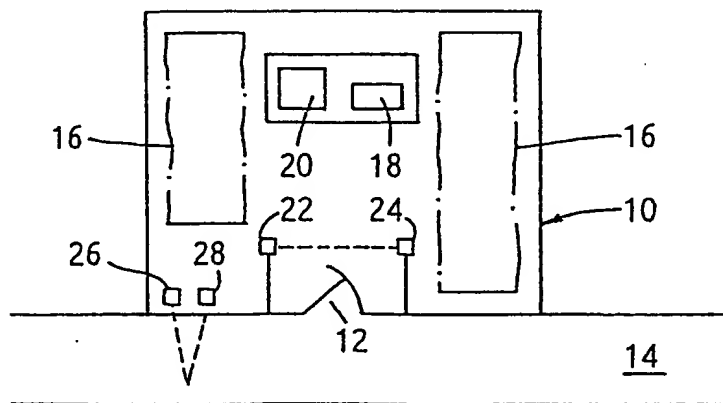
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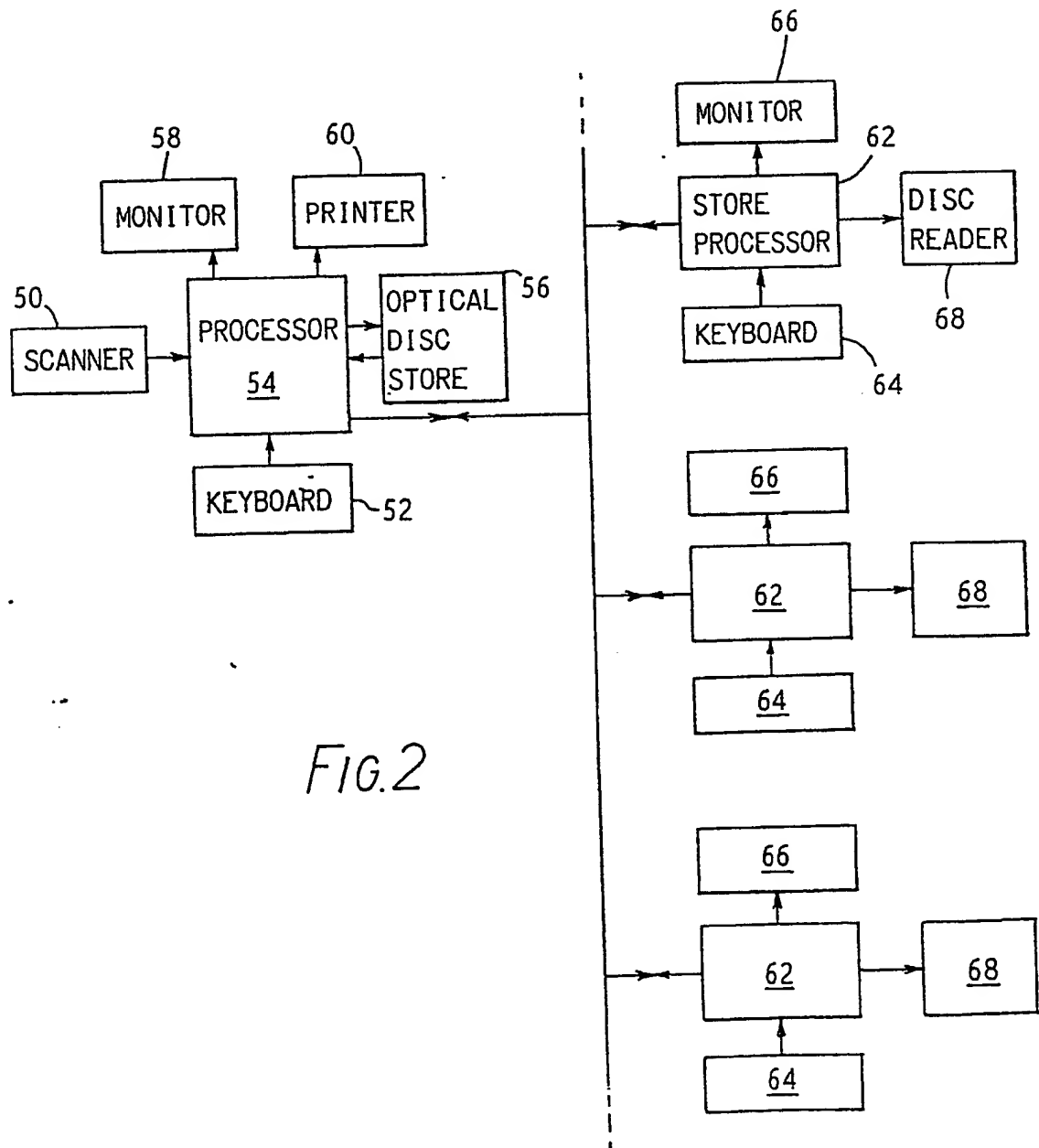
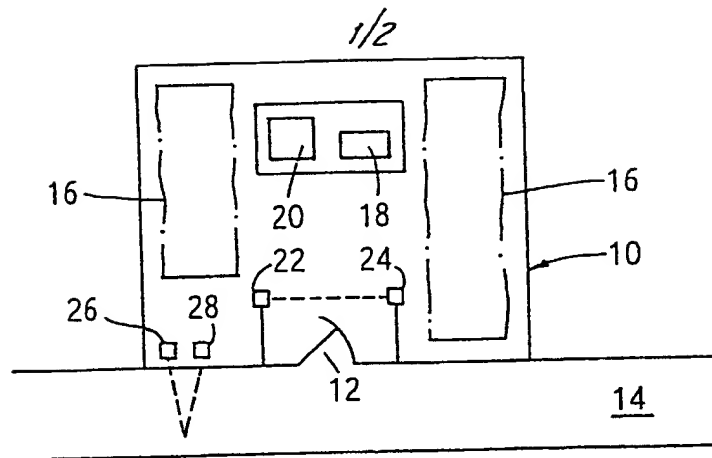
(54) Apparatus for use in retail operations

(57) In one embodiment the number of customers entering a store (10) by entrance (12) on thoroughfare (14) is compared with the number of pedestrians on the thoroughfare. The information is then used to monitor the effect on units sold per number of customers when say the window display is changed.

In a second embodiment a pictorial representation of an item of merchandise is generated by a laser scanner. The representation is stored on a template which further includes classification and identification information. A template is displayed in response to selected information input by a customer and can be varied to allow the customer to "browse" through the templates.

The items of merchandise may be ladies fashion clothing.





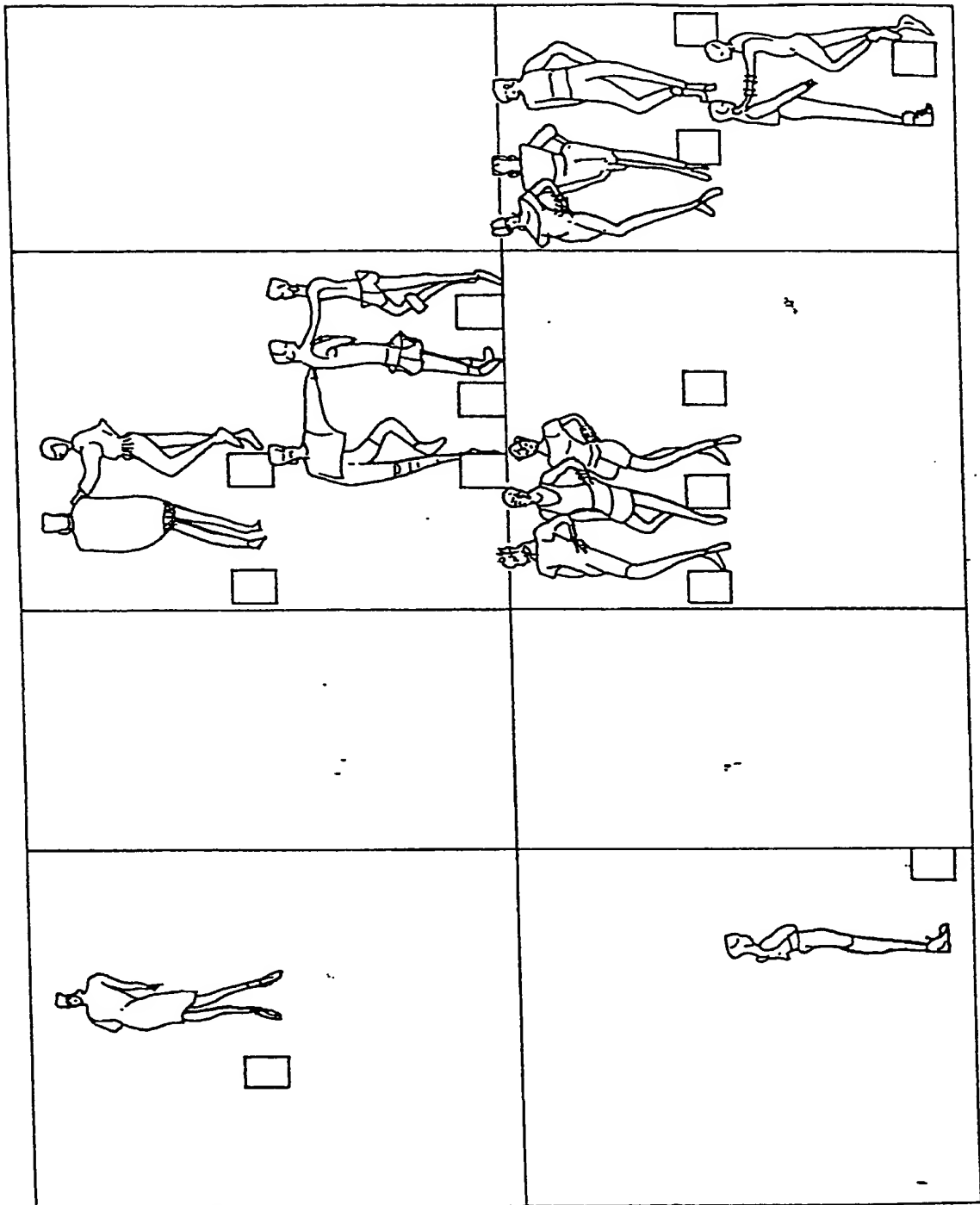


FIG.3

APPARATUS AND METHODS FOR USE IN RETAIL OPERATIONS

This invention relates to retail operations, and specifically to apparatus and methods for use in such operations. The invention will find particular application in the retailing of merchandise where visual appearance is the principal criterion on which purchase decisions are made, an important example of such merchandise being fashion clothing.

It is well understood in the retailing of fashion clothing that factors such as the quality of the window display, staffing levels, and the skills and industry of individual staff members, can have significant effects on the profitability of a store. Procedures are widely available for monitoring turnover at the level of the store, department or individual staff member, and thus some information is made available concerning the broad effects of, say, increasing the quality of staff or improving a window display. Turnover is, however, determined by a very wide range of factors and is not in itself a sufficiently accurate measure of retail effectiveness, for proper management control to be exercised. It is therefore an object of one aspect of this invention to provide improved apparatus for monitoring retail effectiveness, enabling management control to be exercised more selectively and to greater effect.

Accordingly, the present invention consists, in one aspect, in apparatus for monitoring retail effectiveness in a retail store having an entrance adjacent a pedestrian thoroughfare, comprising: a pedestrian meter for measuring the flow of pedestrians along said thoroughfare; a customer meter for measuring the flow of pedestrians through said entrance; means for measuring the rate at which sales are made in the store; and processor means connected to receive inputs from said pedestrian meter, customer meter, and means for measuring and arranged to provide, for a specified time interval, a first output related to the proportion of pedestrians in the thoroughfare entering the store, and a second output related to the amount of sales made per customer entering the store.

The two outputs, between them, enable close control to be achieved over the effectiveness of the store. Thus, the results of a change in a window display can be seen directly as a change in the proportion of pedestrians choosing to enter the store. Because this information is available as an almost immediate feedback, it becomes possible to experiment with new display techniques and identify quickly those which have a positive effect. Fine tuning of the display, even on a day by day basis, is then possible, again using the feedback information to maximise the number of customers entering the store.

The second output provides a measure of the effectiveness by which customers are persuaded to make purchases. Targets can be set for this figure and attainment of the target level can be monitored independently of variations in the number of customers entering the store. It may be, for example, that with an increase in the number of customers entering the store and a decrease in the amount of sales made per customer, an increase in staffing levels is indicated.

Preferably, the calculation of the amount of sales per customer is made at a relatively short time interval, such as one hour. With this information, it would be possible - in an example - to identify a situation in which an increase in the number of customers in a busy period with an associated, seemingly positive, increase in turnover, is in fact matched by a drop in the amount of sales made per customer. Armed with such information, management might elect to amend a staffing rota so that more capable, or greater numbers of staff are working in the busy period, so as to maintain or increase the amount of sales made by customer and to increase still further turnover in the busy period.

There exists in the fashion clothing and other retail areas, extensive computer systems dealing with, stock control and management accounting. These generally operate satisfactorily in the production of numerical information. In the manufacturing field, considerable progress has been made in CAD (Computer Aided Design) utilising the graphics

capability of current processors and display devices to store and manipulate digitised images. The designer is considerably assisted in his work and, if necessary, direct links can be established with CAM (Computer Aided Manufacture) equipment. The computer records established in this way play no part, however, in the future retailing of the manufactured items.

It is an object of a further aspect of this invention to provide computer based apparatus which can be used in retail operations to provide and manipulate not only numerical but also pictorial information. It has been recognised by the present applicant that with fashion clothing, and other merchandise in which visual appearance is the primary criterion on which decisions are made, the known numerically based computer systems can to great benefit be supplemented with systems capable also of handling pictorial information. It should be understood that this information need not be, and preferably is not, of the accuracy required for CAD / CAM purposes, but is sufficient to enable visually influenced decisions to be made without recourse to the merchandise itself, or to detailed drawings of the merchandise. These visually influenced decisions can take various forms and will be likely, in any particular application, to change as the operation progresses from initial design selection, through merchandising to customer purchase. It has been recognised by the present applicant that a single record, properly arranged, can be processed and displayed in the various forms necessary to facilitate all these visually influenced decisions.

Accordingly, the present invention consists in a further aspect in: apparatus for use in retail operations, comprising a template store holding template records, each comprising a pictorial representation of an item of merchandise, a plurality of fields of classifying information and a plurality of fields of identification information; means for inputting template records into the template store; class display means for displaying simultaneously all template records associated through said fields of classifying information with a selected class, so as to make apparent visual links between records in the class; means for

updating said classifying information; customer selection means for inputting selected identification information; and customer display means for displaying one or more template records corresponding in said fields of identifying information with said input selected information.

Preferably said fields of classifying information are selecting from the group consisting of merchandise source, retail store department, range, fashion category, price category, and turnover category, with said fields of identifying information being selected from the group consisting of material, colour, and price.

Taking for the purposes of illustration the retailing of ladies' fashion clothing, each template record will comprise a pictorial representation in the form of a designer's freehand sketch. This will be in colour. The design will further include classifying information, such as the department to which the style corresponds (eg "casual"), the season, the price category (eg low price, medium price, or high price) and the fashion category (eg basic, fashion, or high fashion). There will additionally be identification information, such as the style number, the expected retail price, the quantity expected to be ordered and the fabric.

The class display means, according to the invention, will be of considerable assistance to the design editor in enabling him to display simultaneously the templates associated with a particular season in each department. These may conveniently be organised in a matrix divided as between the contemplated waves in each season, the price bands, and the fashion bands. By having this information available in pictorial form, it is possible for the visual links between templates to be studied. It might be the case that the high fashion range in a particular season is too much dominated by a single bodyshape, or a single colour. Alternatively, the display might make apparent an unwanted dichotomy between the low priced and high priced regions of the range. Such visual links cannot be recognised in conventional numerical computer systems, and are only apparent from existing paper drawings with considerable effort in arrangement and correct juxtaposition of those drawings.

The invention contemplates that the same templates will be used in a retail store to enable preliminary selection of merchandise by a customer. Thus, information will be provided concerning the size, budget and favoured colours of the customer, together with the item of clothing required. Using generally standard database processing techniques, templates corresponding in their identifying information with this selection would be displayed, enabling the customer to make a preliminary selection of garments. It is believed to be important that the selection procedure be based additionally on those garments presently held in stock at the retail store in question.

Still further uses of the class display means are contemplated. Thus, utilising generally conventional stock control systems, it will be possible to assign to each template a classification indicating whether, over a prescribed period, the style in question has achieved a high, medium or low turnover. It will then be possible to produce a simultaneous display of, say, all low turnover styles, which may possibly suggest reasons for the comparative low performance.

This invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a diagrammatic representation of a retail store.

Figure 2 is a block diagram of apparatus according to the present invention, and

Figure 3 is an illustration of a display produced in accordance with the present invention.

The store, shown generally at (10), has an entrance (12) opening onto a pedestrian thoroughfare (14). The store contains racks of fashion clothing shown schematically at (16), and a till (18) which is associated with a processor (20).

Adjacent the entrance (12), there is positioned an optical beam sensor consisting of a transmitter / receiver device (22), with an aligned retro-reflector (24). Such equipment is available commercially and acts to count the number of times the beam returning from the retro-reflector (and extending across the entrance to the store) is broken by a customer. Dividing this number by two provides a measure of the number of customers entering or leaving the store in any defined time interval. An output is sent from this sensor to the processor (20).

At a convenient location, suitably in a corner of the window display, a further optical sensor is provided in the form of a transmitter (26) and receiver (28). The transmitter (26) acts to direct a beam of light across the thoroughfare (14) and the receiver (28) detects reflections from pedestrians. The selectivity of the receiver (28) is set at a level such that reflections from more remote objects such as buildings or cars are not detected. In a modification, where circumstances permit, a retro-reflector is positioned at the opposite side of the thoroughfare so that pedestrians are then detected through the breaking of a beam rather than through reflection. The detector (28) is similarly connected with the processor (20) to provide a count of pedestrians passing along the thoroughfare (14).

The processor is programmed to provide, at defined time intervals of typically 1hr, the ratio of numbers entering the retail store to numbers passing the retail store. This ratio is then stored for inclusion in a subsequent management report. Over, preferably, the same time interval, the processor calculates the amount of retail sales made per customer. The retail sale information will be taken directly from the till and may be quoted in numbers of units sold or in Sterling value. A convenient expression is the ratio of units sold to the number of customers.

In the manner outlined above, management decisions made on the basis of the outputs provided by this invention, should have the effect of increasing turnover significantly. In a typical

case, use of the described apparatus might be expected to increase the proportion of passers-by entering the store from 2% to 4%. Similarly, the ratio of units sold might be increased from around 1 in 15 to 1 in 5. Thus, a theoretical increase in turnover of 600% is suggested. Whilst this is unlikely to be achieved consistently in a practical situation, major increases of 200% or more should be achievable.

It will be understood that a wide variety of devices beyond the optical reflection units described, could serve as pedestrian and customer meters.

Turning now to Figure 2, there is illustrated in block diagram form, apparatus according to a further aspect of this invention.

It is proposed that coloured designer sketches are scanned in a laser scanner (50) with the associated alpha-numeric information being inputted through a keyboard (52). Under the control of a main processor (54), a template record is created in an optical disc store (56). This template contains in digitised or appropriate graphics language form (the term digitised being used herein to denote all such representations) a pictorial representation of the sketch together with information such as:-

DEPARTMENT	eg "casual"
SEASON/WAVE	eg "end of September"
STYLE NO.	
PRICE BAND	eg "medium"
FASHION BAND	eg "high fashion"
PRICE	
DESIGNER	
FABRIC	
QUANTITY	

Through the key board (52), various classes of records will then be selected for simultaneous display on the colour monitor (58) or colour printer (60). For example, one wave in a department might be displayed to check the overall "look" of a collection. Alternatively, template records can be displayed in fashion bands, in price bands and in accordance with the designer's name. The ability to display pictorial representations in this variety of ways will be of considerable assistance to those responsible for creating the visual effect of a company through its merchandise. One example of such a display is shown in Figure 3. As is preferred, this takes the form of a matrix. The dimension of the matrix will be determined by the size of the display medium and the minimum scale necessary for proper appreciation of the pictorial representations.

Amendments can be made to the template records until the collection is finalised. Then, if desired, supplementary information can be added, for example, suggesting coordinations between garments in the collection.

As merchandise begins to be sold, the template records can be updated dynamically. Thus, for example, information can be added relating to the turnover achieved by each style and the associated gross margin. Fresh matrices can then be displayed showing, for example, all slow moving styles. This display may suggest, through visual associations, corrective action that would not be apparent from alpha-numeric computer print-outs.

In each retail store - or department, as appropriate - there is provided a store processor (62) with a keyboard (64), colour monitor (66) and disc reader (68). The store processors are linked operationally with the main processor (54). This can be achieved directly with a telecommunications link, or indirectly through the periodic dispatch of updated optical discs. Similar class displays can be produced for use by the store management, with turnover information restricted of course to the store in question. It is also proposed, however, that the store processor be used interactively to assist customers in locating merchandise

suited to their needs. Thus, a customer requiring a specified garment in a particular size, would be shown on the colour monitor (66), representations of suitable garments currently available in that store. The selection could be qualified by price and colour. If necessary, the store processor can be provided with a colour palette with recommendations being provided as to appropriate choices to suit the customer's hair colouring.

In a modification, not illustrated, each store template record contains an identification of the rack or other location in the store at which the corresponding garment will be found. This can be achieved by providing each rack with, say, an optical bar code which is scanned (along with conventional bar codes on the merchandise) at daily or weekly intervals.

It is believed that allowing the customer interactive access to the pictorial records, which remain of course original designers' sketches, will considerably enhance the selection process. Confining the displayed records to those actually available in the desired colour and size will avoid disappointment and maintain the customer's interest. The ability to show quickly alternative colours or styles may enable a sale to be made which would otherwise be lost. Similarly, the ability to display coordinating garments suggested by the original designer, may additionally increase sales.

The display of template records to meet selection requirements or in particular classes will be of assistance in still further areas of the retail operation. One final example will be quoted of the display manager who can select styles to create a particular window display. The display can readily be assembled (and if desired, a simulation displayed on the monitor or printer) using - for example - only styles of "medium" turnover, of a particular colourway and held at above a defined stock level.

Whilst this invention has been described with particular emphasis on the retailing of ladies fashion clothing, it will find application in a wide variety of retail applications where decisions are made on the basis of appearance.

The computer and peripheral equipment described is commercially available and the skilled man will be able to connect and to program this equipment, upon the basis of the foregoing description.

Claims

1. Apparatus for monitoring retail effectiveness in a retail store having an entrance adjacent a pedestrian thoroughfare, comprising a pedestrian meter for measuring the flow of pedestrians along said thoroughfare; a customer meter for measuring the flow of pedestrians through said entrance; means for measuring the rate at which sales are made in the store; and processor means connected to receive inputs from said pedestrian meter, customer meter, and means for measuring and arranged to provide, for a specified time interval, a first output related to the proportion of pedestrians in the thoroughfare entering the store, and a second output related to the amount of sales made per customer entering the store.

2. Apparatus according to Claim 1, wherein the pedestrian meter and the customer meter each comprise means for transmitting and receiving a beam which is broken by the passage of a pedestrian.

3. Apparatus for monitoring retail effectiveness in a retail store having an entrance adjacent a pedestrian thoroughfare, substantially as described with reference to the accompanying drawings.

4. Apparatus for use in retail operations, comprising a template store holding template records, each comprising a pictorial representation of an item of merchandise, a plurality of fields of classifying information and a plurality of fields of identification means for inputting template records into the template store; class display means for displaying simultaneously all template records associated through said fields of classifying information with a selected class, so as to make apparent visual links between records in

the class; means for updating said classifying information; customer selection means for inputting selected identification information; and customer display means for displaying one or more template records corresponding in said fields of identifying information with said input selected information.

5. Apparatus according to Claim 3 or Claim 4, wherein said fields of classifying information are selected from the group consisting of merchandise source, retail store department, range, fashion category, price category, and turnover category.

6. Apparatus according to Claim 5, wherein said fields of identifying information are selected from the group consisting of material, colour, and priced.

7. Apparatus for use in retail operations substantially as described with reference to the accompanying drawing.

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Examiner's report to the Comptroller under
Section 17 (The Search Report)

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Relevant Technical fields

(i) UK Cl (Edition K) G4D DBX

(ii) Int Cl (Edition 5) G07C

Search Examiner

MR M J JONES

Databases (see over)

(i) UK Patent Office

(ii) ONLINE DATABASE: WPI

Date of Search

12 FEBRUARY 1992

Documents considered relevant following a search in respect of claims

1-3

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
	None	

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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